

## REMARKS

Claims 52 and 53 have been cancelled. Claims 27, 28, 30, 31, 33, 34, 36, 37, 40, 47, 49, 50 and 54 have been amended. Claims 27-51 and 54 remain for further consideration. No new matter has been added.

The objections and rejections shall be taken up in the order presented in the Official Action.

3. The Official Action contends that a certified English translation of the foreign application must be submitted to obtain the benefit of foreign priority under 35 U.S.C. 119 (a)-(d).

In a telephone conversation on September 7, 2007 between Richard H. Kosakowski, Reg. No. 33,934, a law partner of the undersigned, and Examiner Salmon, Attorney Kosakowski noted that an English language translation of the foreign language application and a Verification of Translation were mailed with the remainder of the application documents to the USPTO on December 31, 2004. Those documents are currently indicated on the PTO's Private PAIR system as being filed with the PTO. The Examiner then indicated to Attorney Kosakowski that the requirement in the Official Action, page 2, for the certified English translation of the foreign application was no longer applicable.

4. The specification currently stands object to for allegedly failing to provide antecedent basis for the subject matter in claim 33.

Claim 33 has been amended to be consistent with the specification.

5. Claims 30-31 currently stand objected to for allegedly reciting an improper format for a Markush group.

Claims 30 and 31 have been amended.

6. Claims 27-49 and 53-54 currently stand rejected for allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter deemed to be the present invention.

Claim 53 has been cancelled and claims 27, 28, 30, 31, 33, 34, 36, 37, 40, 47, 49 and 54 have been amended.

7. Claims 27-29, 31-37, 41-44, 46, 49-52 and 54 currently stand rejected for allegedly being anticipated by U.S. Published Application 2001/000148 to Kurane (hereinafter "Kurane").

**Claim 27**

Claim 27 recites a method for determining a number of receptors on a carrier. The method includes the steps of:

"preparing a carrier;  
immobilizing at least one receptor on the carrier, where the at least one receptor interacts with a ligand to form a receptor-ligand complex;  
after immobilization of the at least one receptor on the carrier, bringing a marker in contact with the receptor to form a receptor-marker complex with separable binding between the receptor and the marker; and  
determining the number of the receptors on the carrier by detecting the receptor-marker complexes;  
where the receptor-marker complexes are detected independently of the receptor-ligand complexes." (cl. 1).

The Official Action contends that "*Kurane et al. teaches immobilizing a probe on a solid support (preparing a carrier by immobilizing at least one receptor (e.g. a probe)) (p. 8 paragraph 161).*

*Kurane et al. teaches forming a marker (florescent signal) and receptor (probe) complex (p.8 paragraph 161). Kurane et al. teaches a processing step of analyzing the intensity of fluorescence emitted from the reaction system when the target is not hybridized to the probe (p. 7 paragraph 158), therefore Kurane et al. teaches determining the number of receptors on the carrier by detecting the receptor-marker complex (i.e. the fluorescence emitted).” (Official Action, pg. 6).*

Kurane fails to anticipate claim 27 because Kurane teaches that the receptor or probe is marked **before** the receptor/probe is immobilized on the carrier and not **after** immobilization as recited in claim 27. The cited section of Kurane noted above (pg. 8, paragraph 161) discloses that “*the probe according to the present invention may be immobilized on a surface of a solid (support layer), for example, on a surface of a slide glass. In this case, the probe may preferably be immobilized on the end not labeled with the fluorescent dye.” (See also pg. 1, paragraph 2; pg. 2, paragraph 19). Kurane teaches that this method of immobilizing a marked receptor “*makes it possible to determine the concentration of the target nucleic acid in a shorter time, more easily and more accurately.*” (pg. 1, paragraph 17).*

This disclosure in Kurane is in stark contrast to claim 27 which recites the feature where “after immobilization of the at least one receptor on the carrier, bringing a marker in contact with the receptor to form a receptor-marker complex.” It has been found that by immobilizing the unmarked receptors as in the present claimed invention (as compared to immobilizing marked receptors as taught by Kurane), the activity of the surface of the carrier to bind the marker is reduced, which reduces both measurement errors and background noise. Therefore, Kurane is incapable of anticipating claim 27.

As a result, it is respectfully submitted that the anticipation rejection of claim 27 is moot and should be removed, and that claim 27 is in condition for allowance.

#### **Claim 49**

Claim 49 recites a method for determining a number of receptors. The method includes the steps of:

“preparing a semiconductor carrier;  
 immobilizing at least one receptor on the carrier, where the at least one receptor interacts with a ligand to form a receptor-ligand complex;  
 after immobilization of the at least one receptor on the carrier, bringing a marker in contact with the receptor to form a receptor-marker complex with separable binding between the receptor and the marker; and  
 determining the number of receptors on the carrier by detecting the receptor-marker complexes;  
 where the receptor-marker complexes are detected independently of the receptor-ligand complexes, and where the marker comprises a dye.” (cl. 49).

Claim 49 stands rejected for the same reasons as claim 27 and, in addition, the Official Action contends that, with respect to claim 49, “*Kurane et al. teaches that the marker can be a fluorescent dye such as tetramethylrhodamine (a reactive group) (p. 6 paragraph 144).*” (Official Action, pg. 8).

Kurane fails to anticipate claim 49 because, for reasons similar to claim 27 above, Kurane teaches that the receptor (i.e., the probe) is marked **before** the receptor is immobilized on the carrier. In contrast, the method recited in claim 49 marks **after** immobilization.

As a result, it is respectfully submitted that the anticipation rejection of claim 49 is moot and should be removed, and that claim 49 is in condition for allowance.

**Claim 50**

Amended claim 50 recites a method for determining a number of receptors on a carrier.

The method includes the steps of:

“immobilizing a receptor on the carrier;  
after the immobilizing step, bringing a marker in contact with the receptor  
 to form a receptor-marker complex;  
 detecting the receptor-marker complexes; and  
 determining the number of the receptors on the carrier from the detected receptor-  
 marker complexes.” (emphasis added, cl. 50).

Claim 50, which currently stands rejected for the same reasons as claim 27, has been amended to include the emphasized feature above; i.e., that the step of bringing a marker in contact with the receptor to form a receptor-marker complex occurs after the immobilizing step. Thus, the arguments set forth above with respect to the patentability of claims 27 and 49 apply to claim 50. That is, Kurane fails to anticipate amended claim 50 because, for reasons similar to claims 27 and 49 above, Kurane teaches that the receptor or probe is marked before the receptor is immobilized on the carrier, and not after immobilization as recited in claim 50.

As a result, it is respectfully submitted that the anticipation rejection of amended claim 50 is moot and should be removed, and that amended claim 50 is in condition for allowance.

8. Claim 40 currently stands rejected for allegedly being anticipated by Kurane “...as evidence by Cremer *et al* (U.S. Patent 5,922,543 July 13, 1999).” (Official Action, page 9)

It is respectfully submitted that the rejection of this claim is moot, since claim 40 depends indirectly from claim 27, which is patentable for at least the reasons set forth above.

**9-10.** Claim 30 currently stands rejected for allegedly being obvious in view of the combined subject matter disclosed in Kurane and U.S. Patent 6,051,380 to Sosnowski (hereinafter “Sosnowski”).

It is respectfully submitted that the rejection of this claim is moot, since claim 30 depends directly from claim 27, which is patentable for at least the reasons set forth above.

**11.** Claims 38-39 currently stand rejected for allegedly being obvious in view of the combined subject matter disclosed in Kurane and U.S. Patent 6,245,506 to Laugharn (hereinafter “Laugharn”).

It is respectfully submitted that the rejection of these claims is moot, since each of claims 38-39 depends directly or indirectly from claim 27, which is patentable for at least the reasons set forth above.

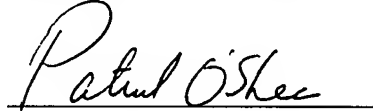
**12.** Claim 48 currently stands rejected for allegedly being obvious in view of Kurane and U.S. Patent 5,695,934 to Brenner (hereinafter “Brenner”).

It is respectfully submitted that the rejection of this claim is moot, since claim 48 depends directly from claim 27, which is patentable for at least the reasons set forth above.

For all the foregoing reasons, reconsideration and allowance of claims 27-51 and 54 is respectfully requested.

If a telephone interview could assist in the prosecution of this application, please call the undersigned attorney.

Respectfully submitted,

A handwritten signature in cursive script, reading "Patrick O'Shea", is written over a horizontal line.

Patrick J. O'Shea  
Reg. No. 35,305  
O'Shea, Getz & Kosakowski, P.C.  
1500 Main Street, Suite 912  
Springfield, MA 01115  
(413) 731-3100, Ext. 102